AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listing of claims in the above-referenced application.

Listing of Claims:

Claims 1-16 (Cancelled).

Claim 17 (Currently amended). A method of fabricating a POFET, comprising the steps of:

coating a glass substrate with a semi-transparent gate electrode;

depositing upon the gate electrode an electrically insulating layer having a first side and a second side, the first side adjacent to the gate electrode;

forming on the second side of the insulating layer a semiconducting polymer layer comprised of a regioregular polyalkylthiophene responsive to incident light and having a 98.5% head-to-tail regiospecific conformation; and

forming on the semiconducting polymer layer electrically conducting source and drain electrodes, wherein the semiconducting polymer layer further comprises a polymer matrix including, in dilute quantities, one or more electron acceptors selected from the group consisting of buckminsterfullerene C_{60} and derivatives thereof, viologen, dichloro-dicyano-benzoquinone, nanoparticles of titanium dioxide, nanoparticles of cadmium sulphide and the like, thereby enabling electron transfer from the polymer matrix upon photoexcitation in order to obtain a high photo-induced current between the drain and source electrodes .

Claim 18 (Previously presented). The method of claim 17, wherein the insulating layer is comprised of a polymeric media.

Claim 19 (Previously presented). The method of claim 17, wherein the insulating layer is partially transparent.

Claim 20 (Cancelled).

Claim 21 (Original). The method of claim 17, wherein the regioregular polyalkylthiophene is Poly (3-octylthiophene).

Claim 22 (Original). The method of claim 17, wherein the regioregular polyalkylthiophene is Poly (3-hexylthiophene).

Claim 23 (Previously presented). A photosensing organic field effect transistor (POFET), comprising:

a substrate insulating layer, the insulating layer having a high relative dielectric constant and a first side and a second side;

a gate electrode, the gate electrode being an electrical conductor, the gate electrode being positioned adjacent to the first side of the insulating layer;

a semiconducting polymer layer, the semiconducting polymer layer being responsive to incident light, the semiconducting polymer layer having a first side, a second side, a first end and a second end, the second side of the semiconductor layer being adjacent the second side of the insulating layer;

a source electrode, the source electrode being an electrical conductor, the source electrode being in electrical contact with the first end of the semiconductor layer; and

a drain electrode, the drain electrode being an electrical conductor, the drain being in electrical contact with the second end of the semiconducting polymer layer, wherein a POFET saturation current gain of 100 or higher may be achieved.

Claims 24-27 (Cancelled).

Claim 28 (Previously presented). The method according to claim 17 wherein the POFET has characteristics such as drain/source current, saturation current gain and switching behavior achieved by applying a suitable combination of gate voltage and/or incident light of a selected duration and intensity.